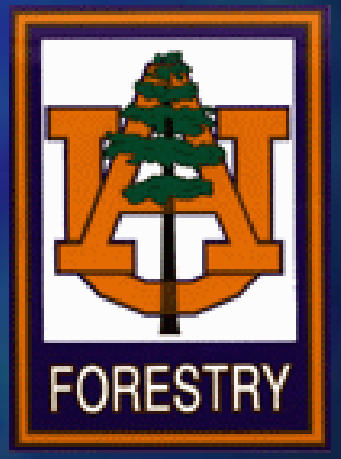
The “December Dip”

David South
School of Forestry
and Wildlife Sciences
Auburn University



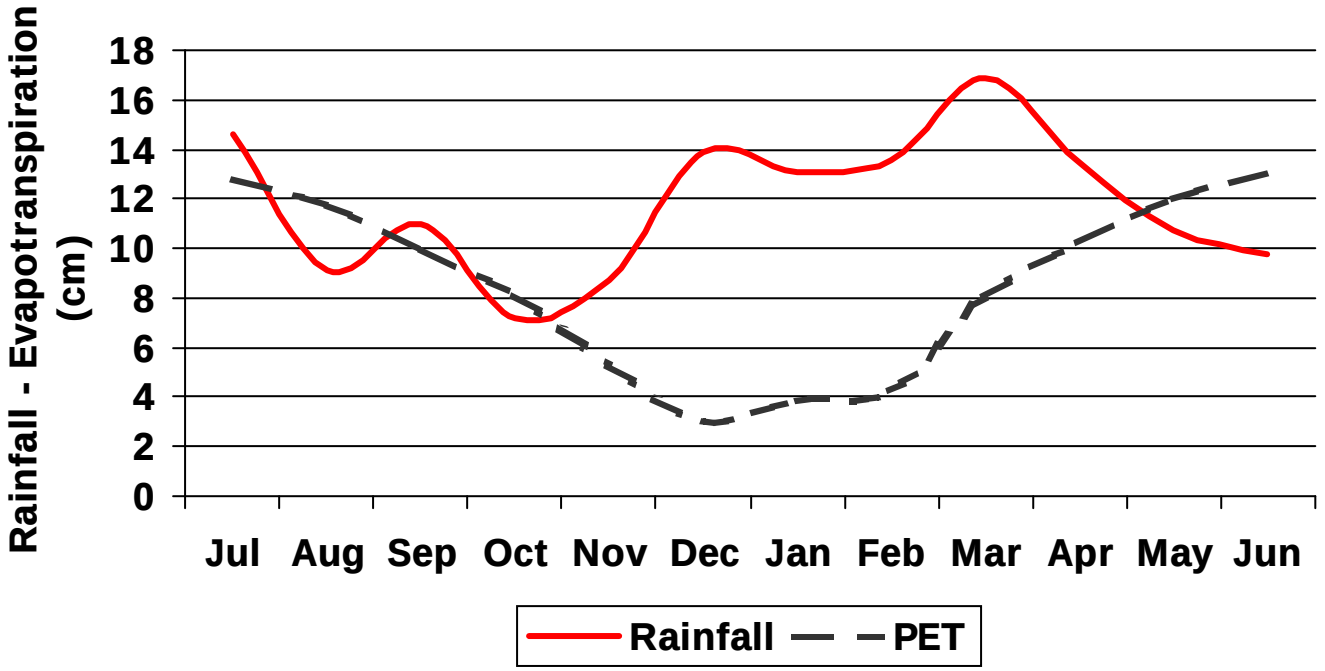


Figure 1. Average monthly rainfall and average potential evapotranspiration at Auburn

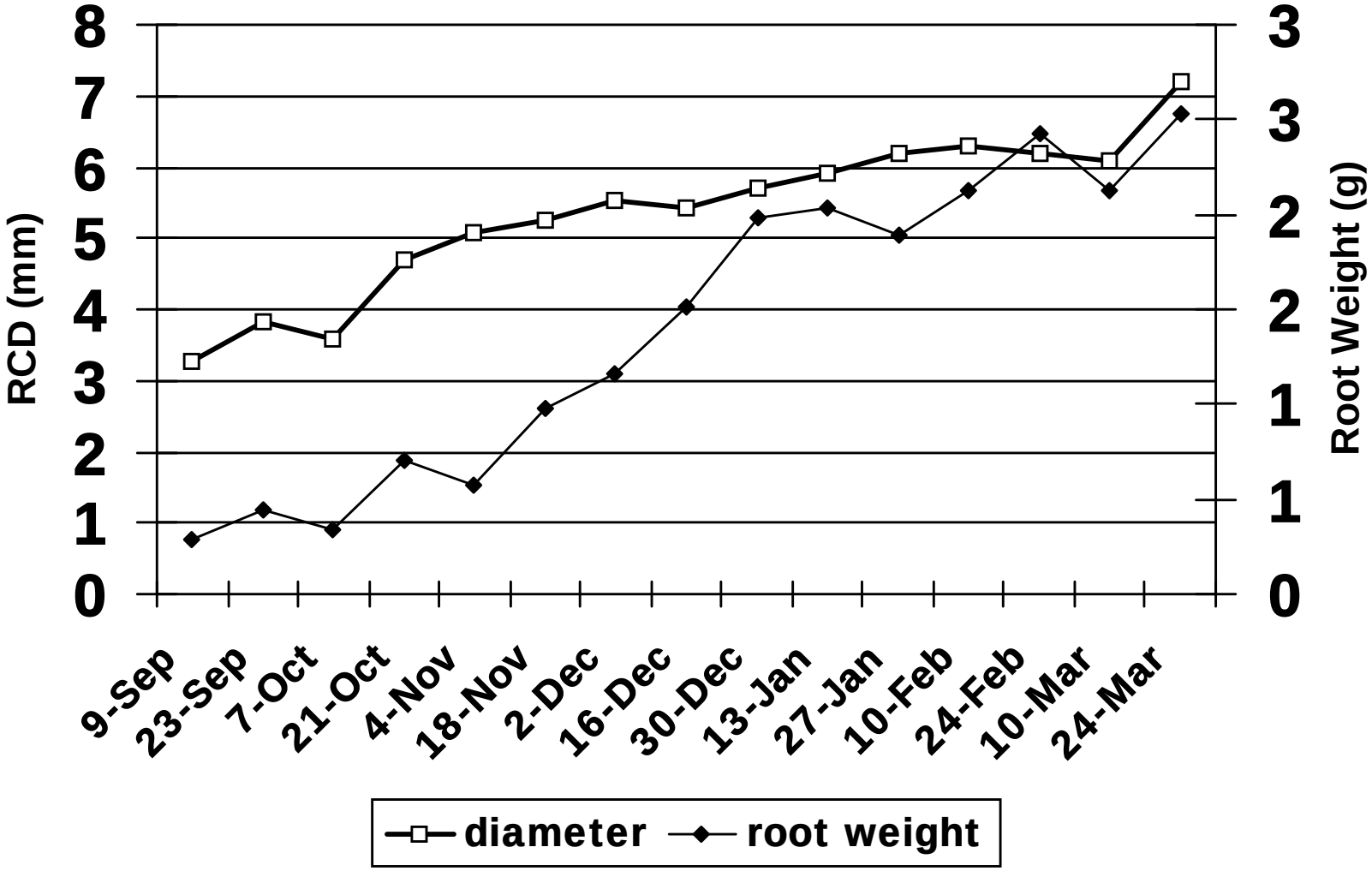
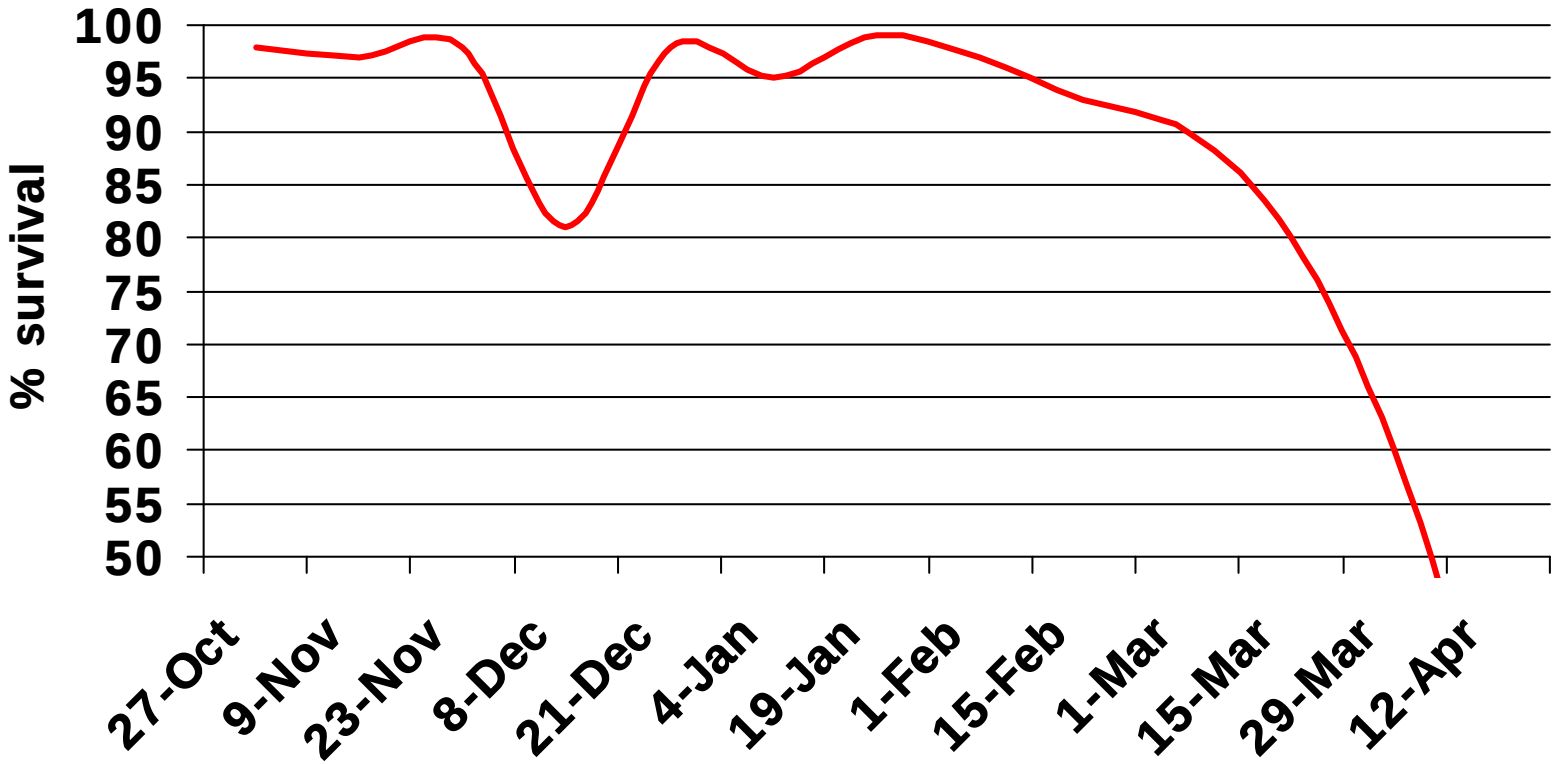


Figure 2. Increase in root-collar diameter and dry weight of roots of loblolly pine seedlings in the nursery (unpublished data provided by James Boyer).

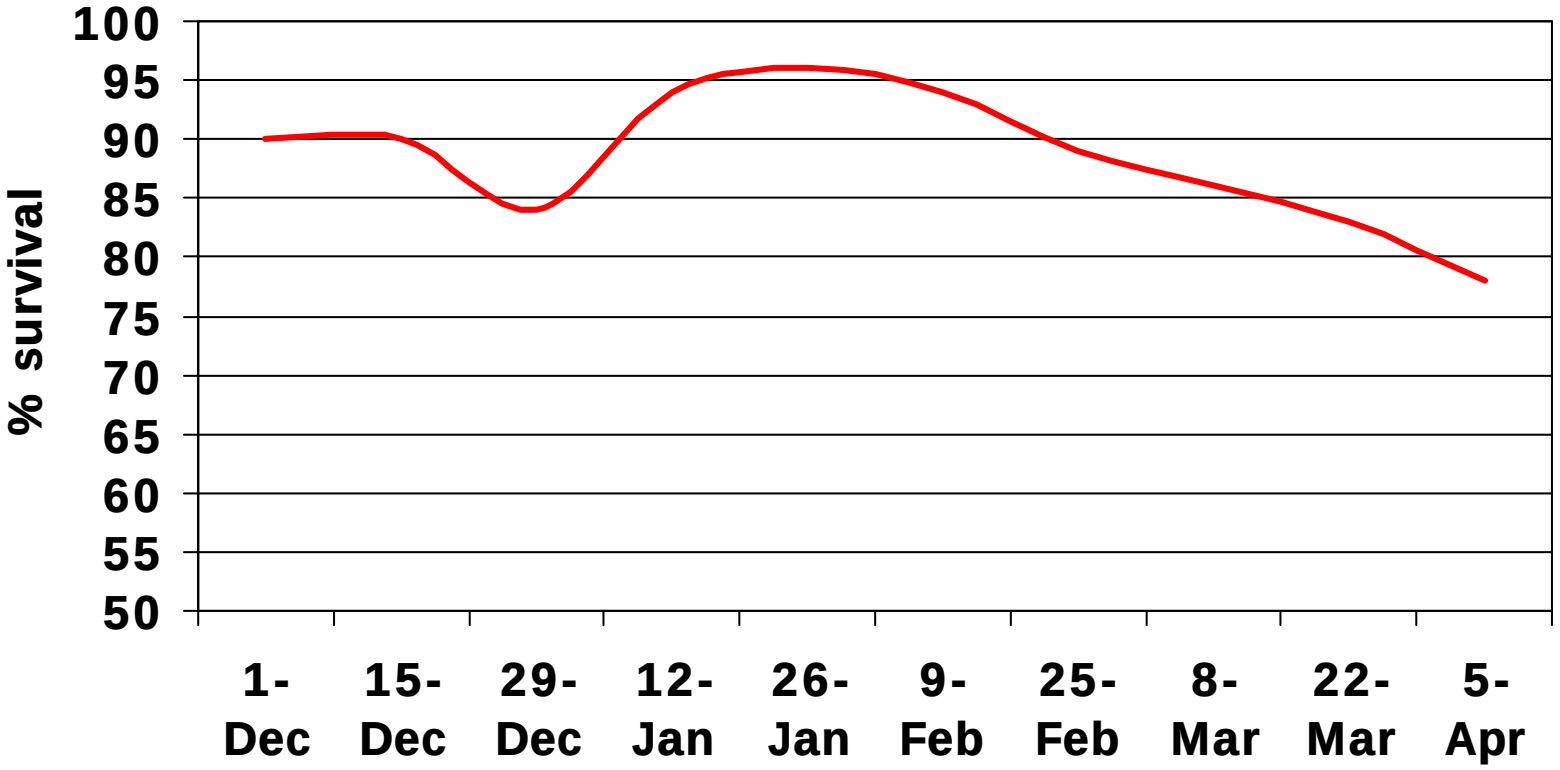
Loblolly Pine - 1937-38



Wakeley 1954

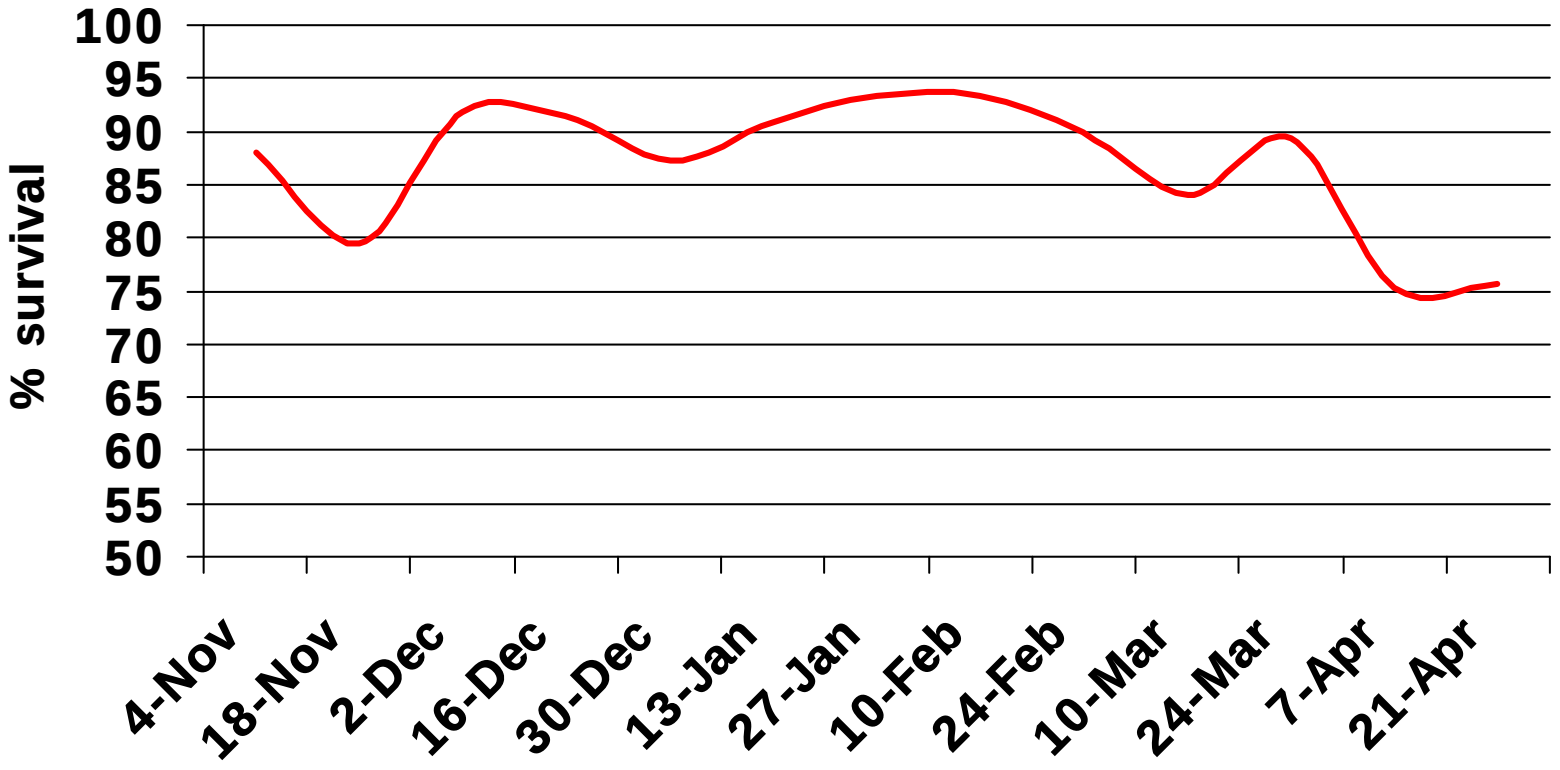
Loblolly Pine - 1959-62

Switzer (1969)



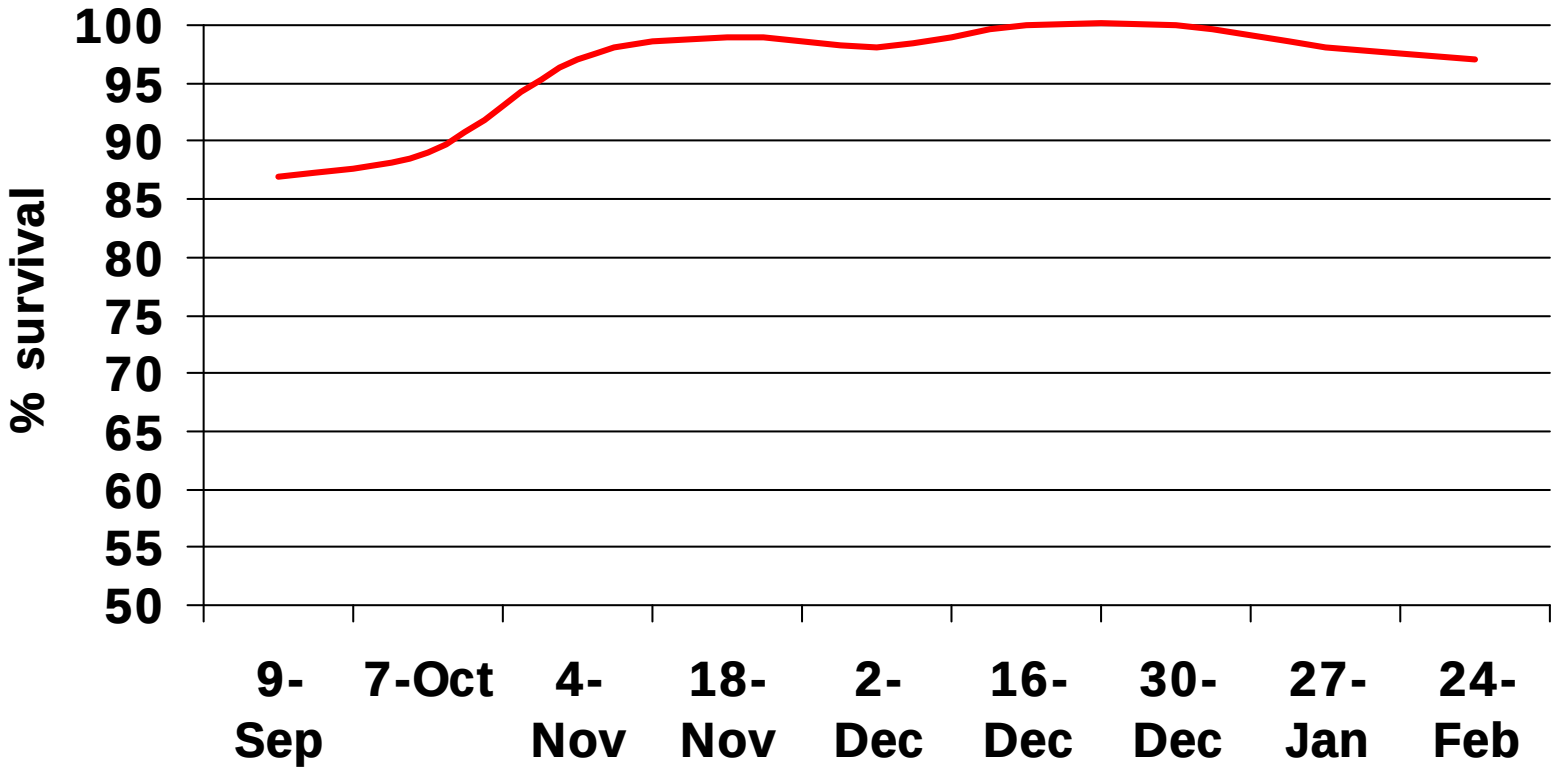
"...the reason for this decline is not known..."

Loblolly Pine - 1959

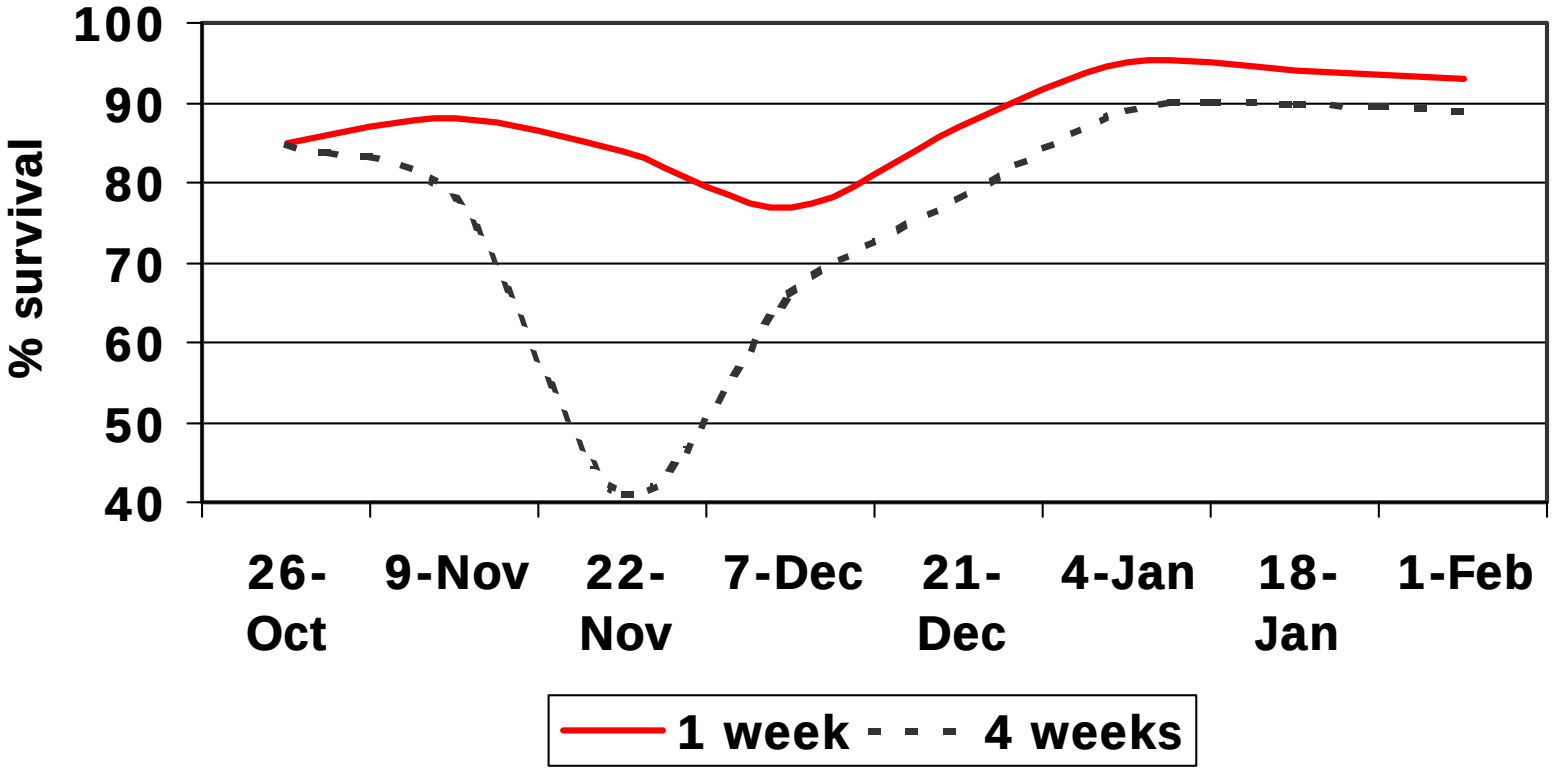


Bilan 1987

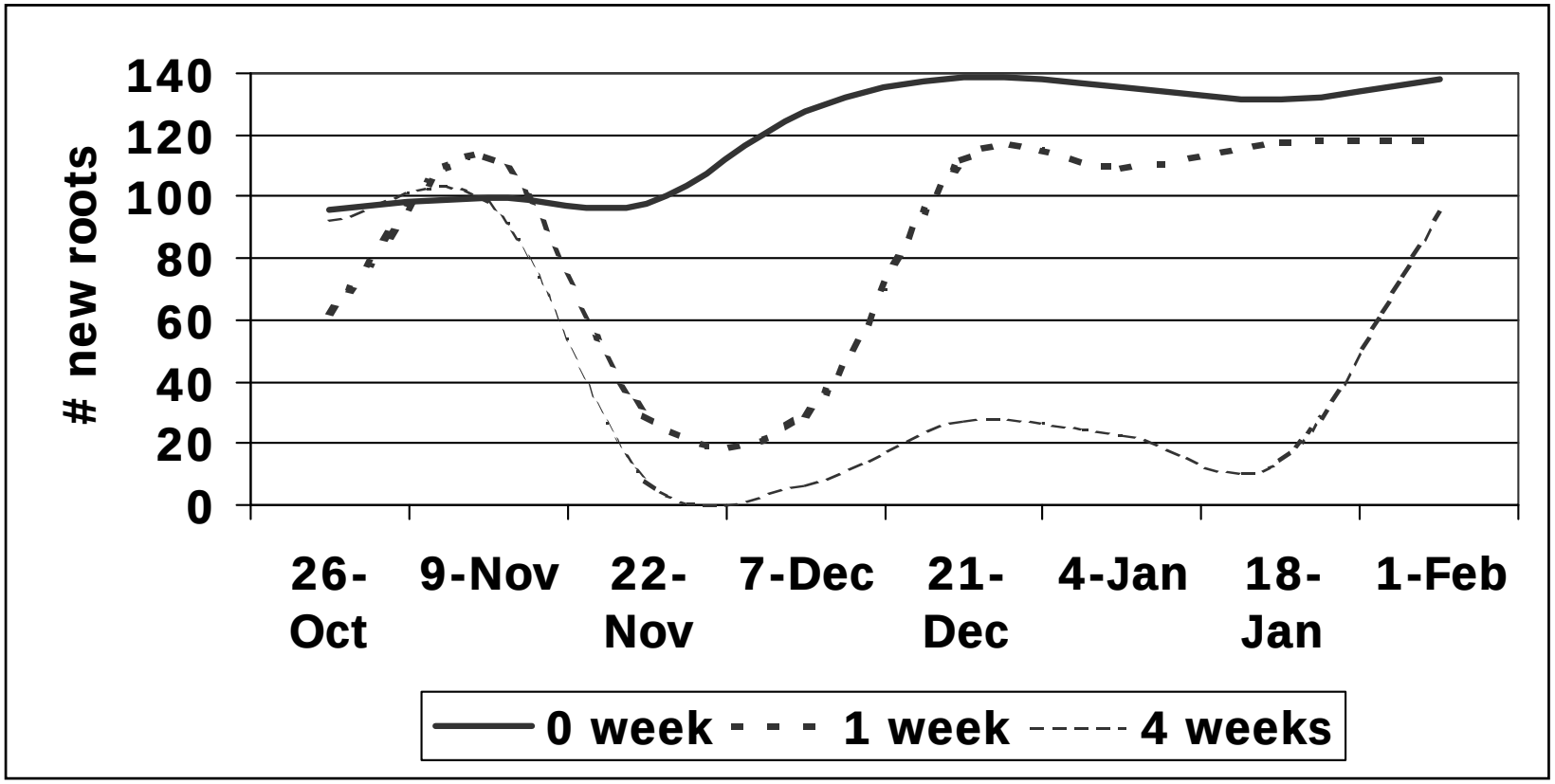
Loblolly Pine - 1986



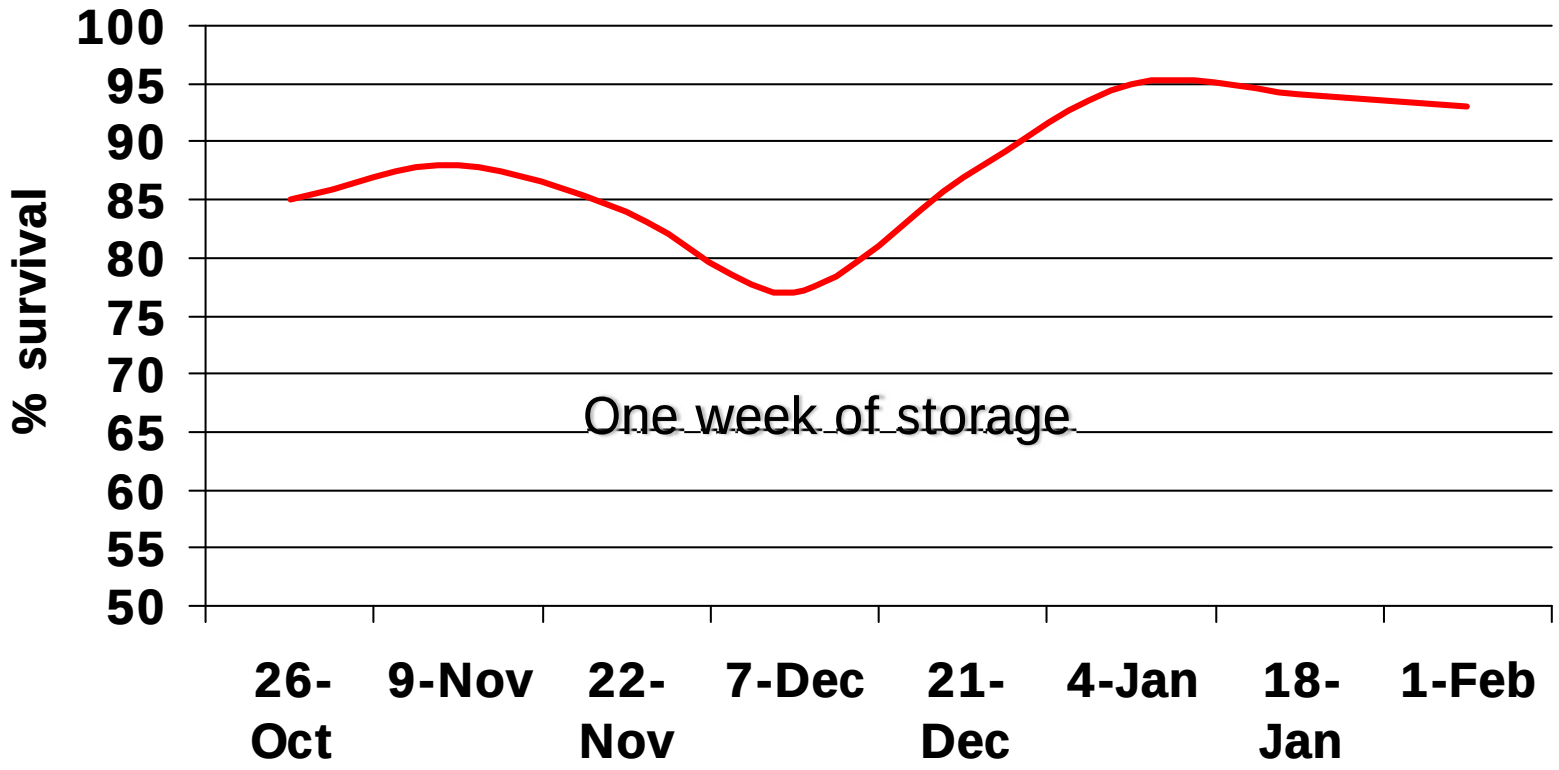
Loblolly Pine - 1988-89



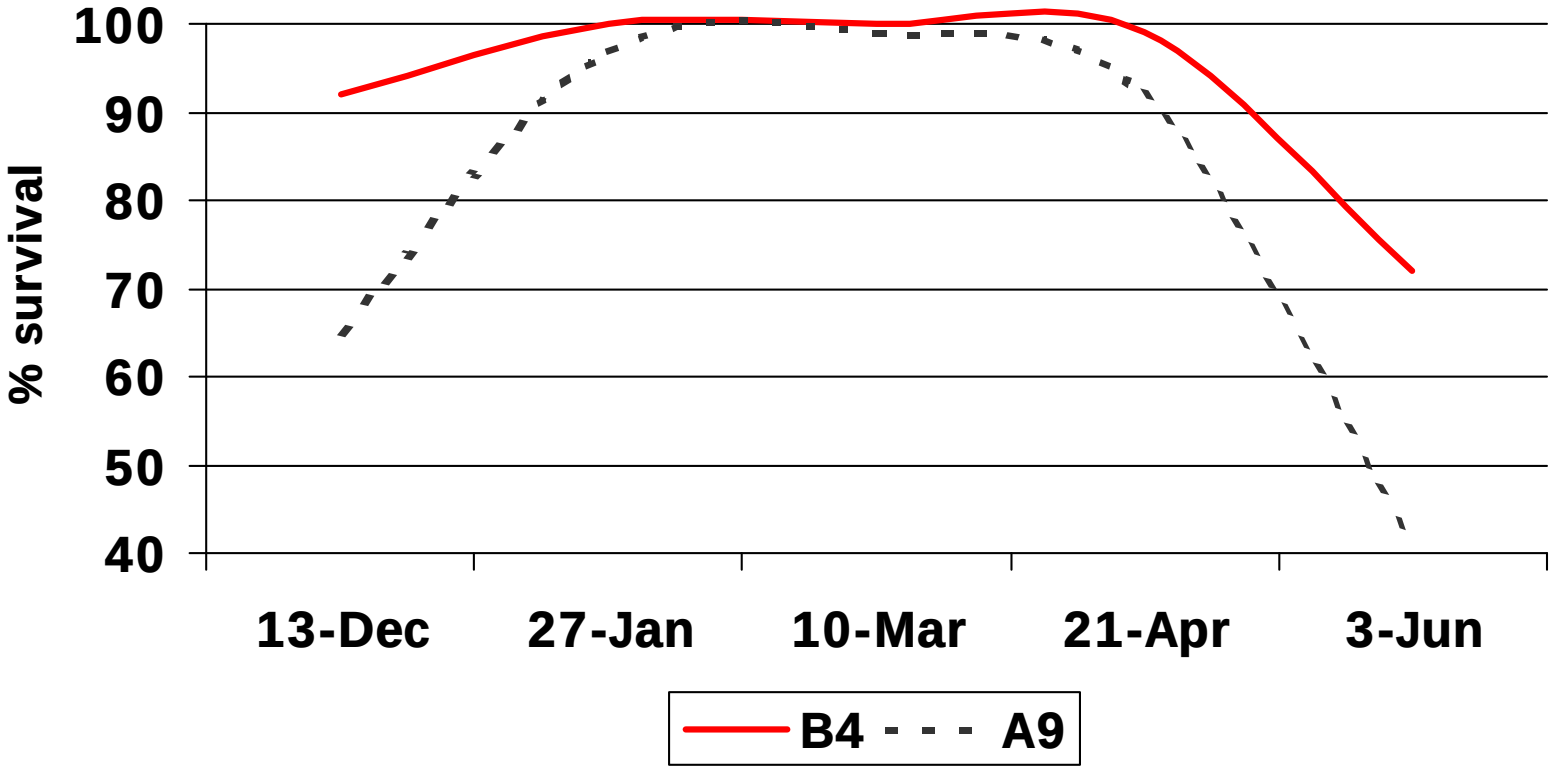
Root Growth Potential

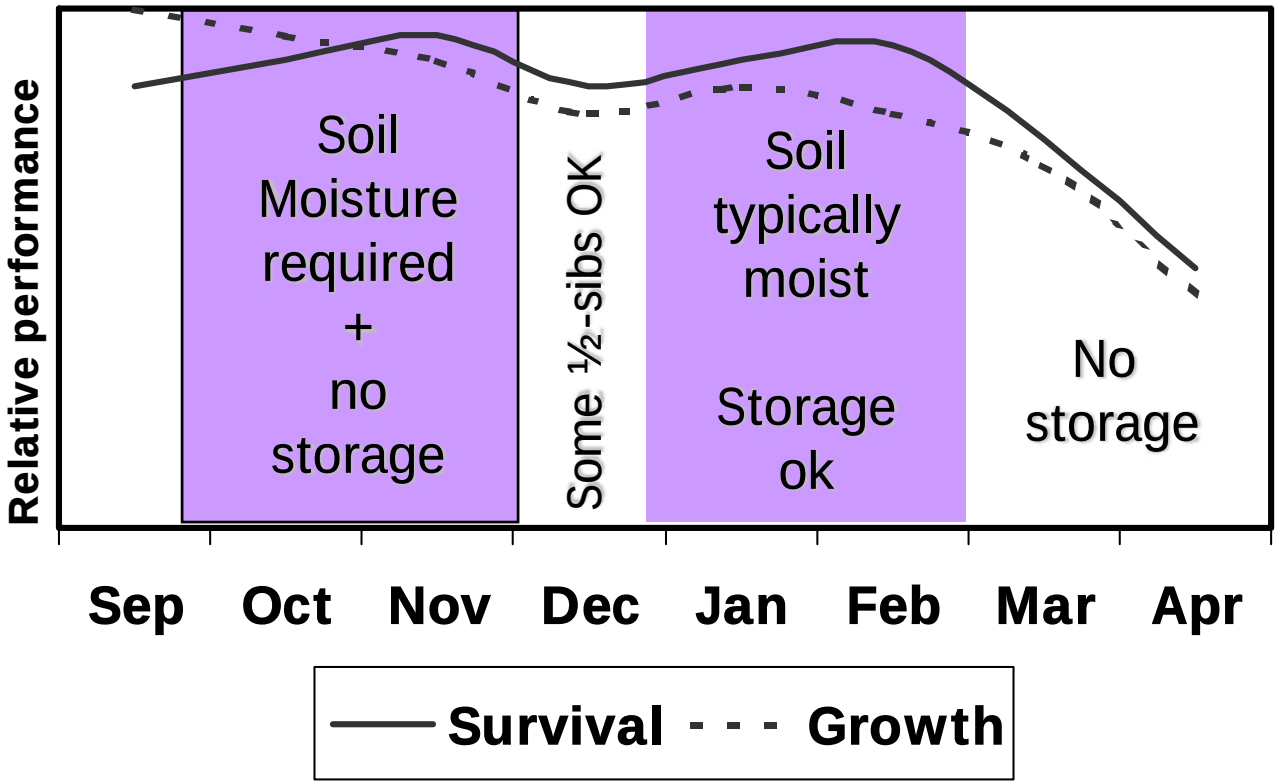


Loblolly Pine - 1988-89

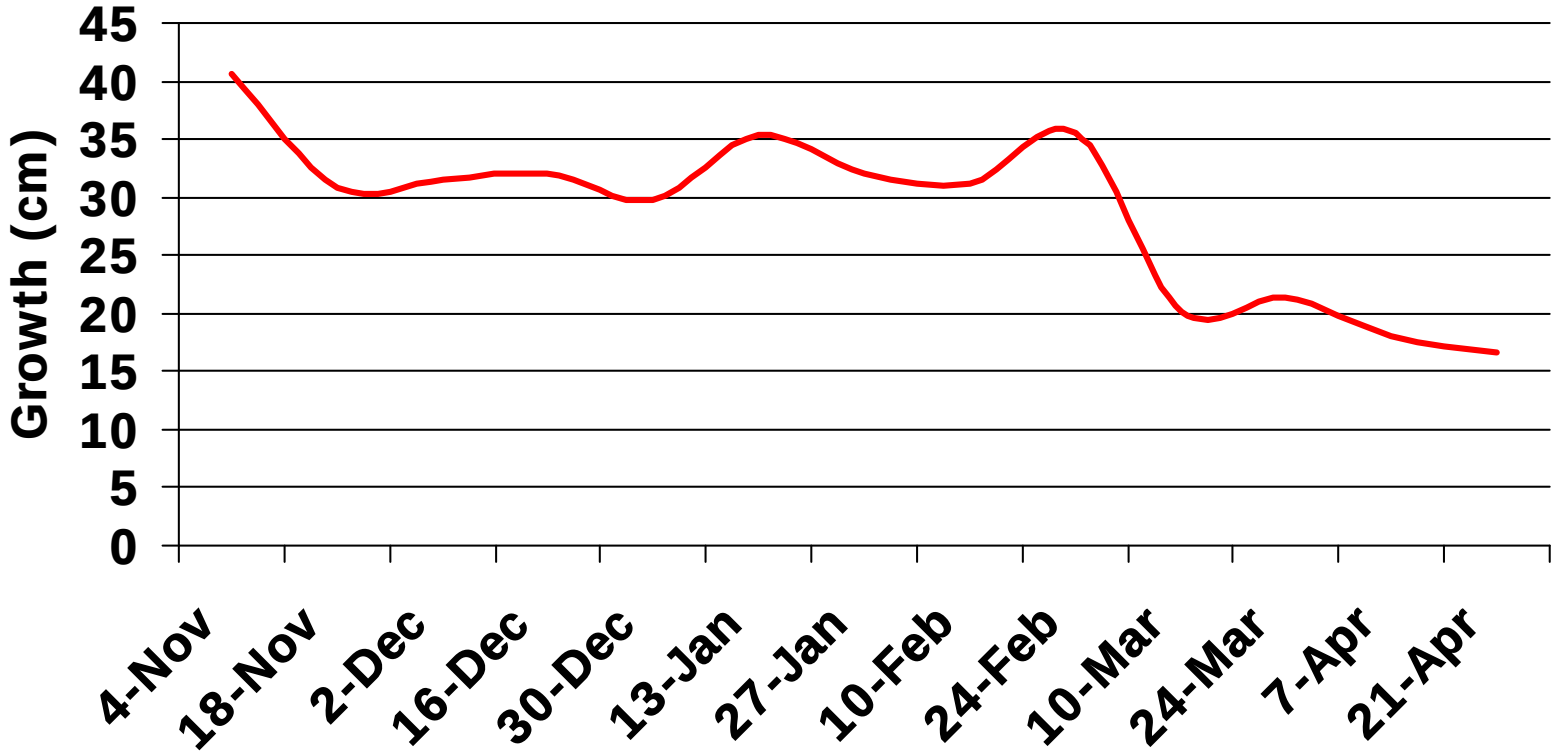


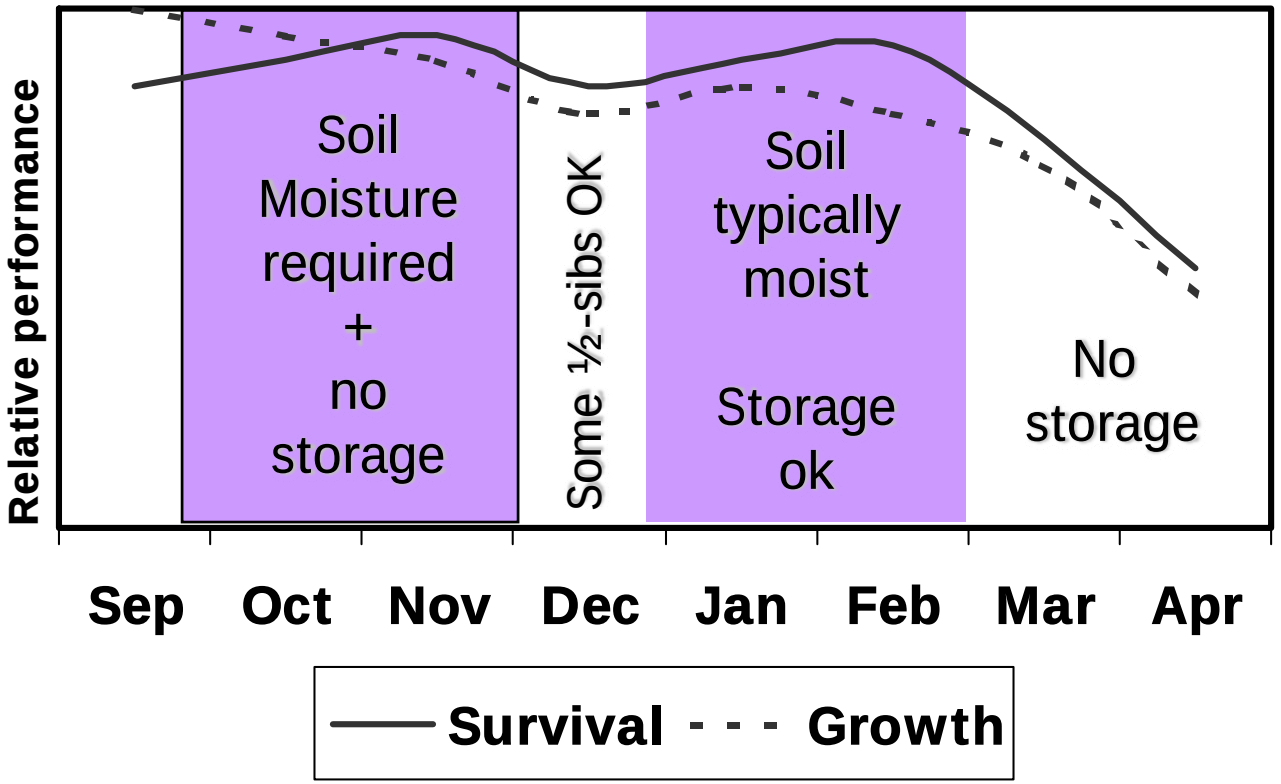
Slash Pine - 1964




Relative performance
Soil Moisture required + no storage
Some ½-sibs OK
Soil typically moist
Storage ok
No storage
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
Survival
Growth

Loblolly Pine - 1959

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Soil typically moist
Storage ok
No storage
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
Survival
Growth

Summary

- A “December dip” in survival does not always occur with loblolly pine. However, it has been observed several times over the past 6 decades (both at an operational level as well as by researchers.
- The exact reason for the “dip” is unknown.

December dip

- The “December dip” in survival appears to occur when terminal buds of loblolly pine are in the deepest phase of dormancy (Boyer and South 1989). This would support the theory that a seedling’s resistance to stress is low when the terminal buds are in deep dormancy (Lavender 1985).